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involucres 4-5^{mm} high : bracts dull white, from ovate in the outer to linear in the inner, obtuse or acutish, nearly all apiculate.

A northern ally of the Texan *G. Wrightii*.

Collected on the geyser formations of Norris geyser basin in the Yellowstone park, July 25, 1899, no. 6139.

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SOME NEW NORTH AMERICAN MOSSES.

(WITH PLATE XI)

IN July 1898 the writer, in company with Mr. James Blake, made a vacation trip into northwestern Montana, during which we collected especially mosses and hepatics. The region visited is reached by the Great Northern railway, which we left at Belton, thirty miles east of Kalispell. Thence we made our way to the north end of lake McDonald, some twenty miles north, where we pitched our permanent camp. The region visited is especially interesting because of the several glaciers which nestle among the precipitous mountain peaks. We visited only one of these, Sperry glacier, at the base of which we found several European mosses heretofore not reported for the United States, as well as some new species closely related to certain alpine species of the old world. So far as determined the material collected includes 140 species of mosses and 20 species of hepatics. The publication of a full report is delayed for various reasons, and it is deemed desirable to publish here only the most important part of the report as far as prepared. A more detailed account of this region, botanically as well as geologically very interesting, may be found in the September number of *Bulletin* of the American Bureau of Geography.

Dicranoweisia subcompacta Card. et Thér., sp. nova.—Dense pulvinato-caespitosa. Caulis simplex vel parcissime ramosus, 6-8^{mm} altus, dense foliosus. Folia madida suberecta, sicca crispatula, 1-1.5^{mm} longa, oblongo-lanceolata, acuminata, subacuta vel obtusiuscula, superne, canaliculata, nervo basi attenuato usque ad apicem producto vel paululum infra evanido, marginibus inferne planis, superne inflexis, integerimis, cellulis irregulariter quadratis vel subrectangularibus, inferioribus laxioribus, juxta costam linearibus, alaribus distinctis, subinflatis, fuscis. Caetera ignota.—Plate XI.

Very nearly allied to the European *D. compacta* Sch., from which it differs by the leaves being more narrowly acuminate and generally subacute, the cells of the areolation larger and with thinner walls, and chiefly by the costa narrower, attenuate below (16 to 25 μ broad; it is 55 μ in *D. compacta*).—Along the trail from Holzinger's basin to the Rim.

Barbula rufipila Card. et Thér., sp. nova.—*B. aciphyllae* habitu et foliorum forma omnino similis, differt tantum cellulis duplo majoribus et magis distinctis (superioribus 20–30 μ in *B. rufipila*, 12–15 μ in *B. aciphylla*) piloqua saepius minus denticulata interdum integro. Specimina sterilia.—Plate XI.

Avalanche basin; Holzinger's basin.

FISSIDENS BRYOIDES GYMNANDRUS (Buse) R. Ruthe.—New to North America. Cardot det.—Shores of lake McDonald; Avalanche trail.

Grimmia Holzingeri Card. et Thér., sp. nova.—Minima, tenella, pulvinatula, obscure viridis, inferne fusca. Caulis erectus, 4–6^{mm} altus, parce ramosus, ramis interdum attenuatis, subflagellaceis. Folia conferta, minima, 0.50–0.70^{mm} longa, 0.20–0.35 lata, madida erecta, sicca appressa, breviter ovato-oblonga, concava, omnia mutica obtuse acuminate, marginibus planis integris, costa canaliculata, usque ad apicem producta, basi 28 μ lata, cellulis superioribus bistratosis, quadrato-subrotundatis, inferioribus unistratosis majoribus, lutescentibus, infimis oblongis vel sublinearibus, omnibus incrassatis. Caetera ignota.—Plate XI.

This very minute species, resembling in habit the small forms of *Andreaea petrophila*, is quite distinct from all the European and North American species of *Grimmia* with muticous leaves by the small size, and the shape and areolation of the leaves.—Base of Sperry glacier; Mt. Trilby.

GRIMMIA MOLLIS B.S.—This European alpine moss is reported from Greenland, and should be found at intermediate stations in Canada.—Base of Sperry glacier.

GRIMMIA SUBSULCATA Limpr. in Rabenh. Cryptog. Fl., Laubm. 757.—New to North America. Cardot det.—Mt. Trilby.

WEBERA CARINATA (Brid.). (*W. cucullata carinata* Husnot; *Bryum naviculare* Cardot).—New to North America. Cardot det.—Base of Sperry glacier.

BRYUM ALPINUM L., var. **denticulatum** Card. et Thér., n. var.—A forma typica differt habitu graciliore, foliis ovato-acuminatis,

brevioribus, marginibus parum revolutis, superne distincte sinuato-denticulatis, costaque longe ab apice dissoluta.—On the way from Holzinger's basin to the Rim.

PSEUDOLESKEA RADICOSA (Müll.) Lesq. & James.—This species was distributed as *P. rigescens* Lindb.: it is the *P. atrovirens* of European authors. Best det.—Holzinger's basin; Mt. Trilby.

PSEUDOLESKEA DENUDATA HOLZINGERI Best, in Bull. Torr. Bot. Club 27: 229. May 1900.—Holzinger's basin; Mt. Trilby; Avalanche basin.

Hypnum Cardoti Thér., sp. nova.—Polygamum, olivaceo-viride, molle, laxiuscule depresso-caespitosum. Caulis procumbens vel ascendens, irregulariter ramosus, 2-4^{em} longus. Folia remotiuscula, patulo-squarrosa, interdum subsecunda, e basi constricta anguste decurrente late ovato-deltoidea, subito in acumen angustum breviusculum recurvum protracta, circa 1.5^{mm} longa et 0.75 lata, marginibus planis fere undique sinuato-denticulatis, costa simplici bifurcata vel gemella, crure longiore ad medium producto, cellulis laxiusculis linearibus subflexuosis, basilaribus brevioribus et latioribus, alaribus laxis majoribus subhyalinis. Folia perichaetalia externa ovato-lanceolata, breviter acuminate, subintegra, enervia, intima plicata, costata. Capsula in pedicello rubente valde flexuoso, circa 18^{mm} longo, subhorizontalis, arcuata, operculo convexo apiculato.—Plate XI.

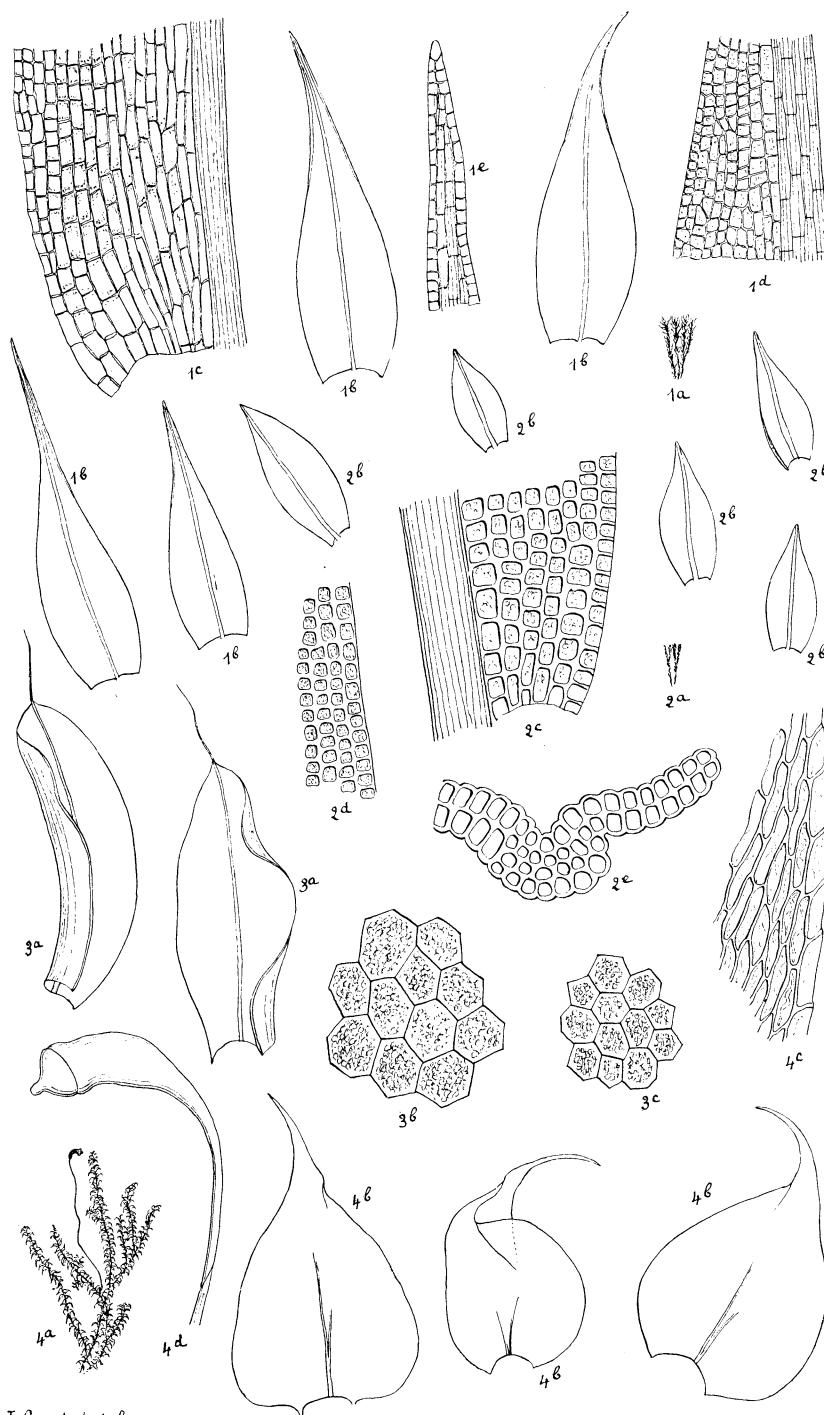
This species is near *H. stellatum* Schreb. and *H. polygamum* Sch. From the first it is at once distinguished by the polygamous inflorescence and the softer leaves with a shorter acumen and a looser areolation. The shape of the stem leaves and of the perichaetal leaves distinguishes it from the small forms of the second species.—Avalanche basin.

HYPNUM FLUITANS L., var. **BRACHYDICTYON** Ren. in Husnot Musc. Gall., forma **Holzingeri** Ren.—Voisin de la var. *brachydictyon* Renauld, n'en diffère que par le port plus grêle, la nervure plus étroite, et le tissu délicat. Dioique ♀!

Cette var., essentiellement alpine, n'avait pas encore, je crois, été signalée en Amérique.

A cause de la brièveté des cellules médianes, on pourrait confondre cette forme avec *Hypnum aduncum* Hedw.; mais le passage brusque des cellules foliaires de la base aux cellules superficielles de la tige permet d'éviter la confusion.—Base of Sperry glacier.

HYPNUM OCHRACEUM UNCIINATUM Milde.—A European alpine moss, new to North America. Renauld det. Holzinger's basin.



J. Cardot del.

HOLZINGER on MOSSES

HYPNUM UNCIINATUM Hedw., var. SURJULACEUM Sch., forma **Holzingeri** Ren.—Forme voisine de la forme *orthothecoides* Lindb.; en diffère par la couleur verte, les touffes compactes encombrées de terre à la base, l'acumen plus court denticulé et le tissu plus délicat, non épaisse.—Base of Sperry glacier.

Minor extensions of range will be noted in a fuller report on this collection.—JOHN M. HOLZINGER, *Winona, Minn.*

EXPLANATION OF PLATE XI.

(Nachet's objectives 3 and 6, oculars 1 and 3, with camera lucida. All drawings are reduced $\frac{1}{4}$ in photo-engraving.)

1. *Dicranoweisia subcompacta*. *a*, entire plant, nat. size; *b*, *b*, *b*, *b*, leaves, $\times 32$; *c*, basal areolation $\times 135$; *d*, marginal areolation in the middle $\times 135$; *e*, point of a leaf $\times 135$.

2. *Grimmia Holzingeri*. *a*, entire plant, nat. size; *b*, *b*, *b*, *b*, *b*, leaves $\times 32$; *c*, basal areolation $\times 285$; *d*, marginal areolation in the middle $\times 285$; *e*, transverse section of a leaf $\times 285$.

3. *Barbula rufipila*. *a*, *a*, leaves $\times 13$; *b*, areolation in the upper part $\times 285$; *c*, the same of *B. aciphylla* from a specimen of Styria $\times 285$.

4. *Hypnum Cardoti*. *a*, entire plant, nat. size; *b*, *b*, *b*, leaves $\times 32$; *c*, marginal areolation in the middle $\times 285$; *d*, capsule $\times 13$.

NOTES OF TRAVEL. III.

RIO AND PETROPOLIS, BRAZIL.

To a professional traveler and to a botanist Rio de Janeiro and Petropolis have more to offer than any other easily accessible place in South America. Mr. Barbour Lathrop, with whom the writer has the pleasure of traveling as assistant, is familiar with many of the pictur-esque spots in the world, and even to him the region about Rio was a most agreeable surprise.

We visited together in 1897 the harbor of Sydney, Australia, which is most commonly compared with that of Rio, and were able to draw comparisons which are decidedly favorable to Rio.

Sydney harbor is long and, in comparison with that of Rio, narrow, with a great number of small coves separated by sharp points of land which jut out into the stream. These points of land, each side of the harbor, alternate with the coves opposite, like the teeth of a shark. These low and rounded hilly points are covered with Australian